Assessment of Training By Demonstration of Competency
Chief Engineer—OSV (Domestic)

Attached are proposed criteria for evaluating the competency of license candidates through the conduct of proficiency demonstrations. Candidates who meet the competency standards and other qualification requirements listed below will receive a license as Engineer–OSV on vessels of less than 500 GRT (3,000 ITC) restricted to waters up to 200 miles off the U.S. coastline traveling on voyages between U.S. ports, including offshore installations on the OCS.

The appropriate knowledge, understanding, and proficiencies will be evaluated through a combination of a Coast Guard examination and on board demonstrations. Those proficiencies which are to be demonstrated on board ship are:

Safe working practices	Recordkeeping and logkeeping	Piping system arrangements
Use of technical manuals and drawings	Emergency and safety procedures	Routine inspection and repair
Lock-out and tag-out procedures	Preparation of main and auxiliary machinery for operation	Cargo handling
Use of electrical measuring equipment	Pumping systems	
Maintaining a proper watch	Generating plant	

It is understood that these criteria do not represent the final assessment tools to be used when demonstrating proficiency. A performance standard that requires a task to be "conducted in accordance with regulations and accepted procedures," for example, implies the development of a limited but functional assessment guide describing those regulations and procedures which can be used by a designated examiner in the conduct of the demonstration. A sample of that guidance for evaluating cargo operations is attached.

In addition to the on board demonstrations, we believe that the examination process is the appropriate way to evaluate performance in the other competencies such as lifesaving, complying with international and national regulations, etc.

Further, the fact that this officer is the only required engineer officer on board an OSV means that he or she must perform the duties of a Chief Engineer. Because the exam and proficiency demonstrations address the competencies at that level, no further exam or proficiency demonstrations will be required to advance to Chief Engineer.

In addition to demonstrating proficiency in the items listed, candidates for a license as Engineer–OSV on vessels of less than 500 GRT (3,000 ITC) restricted to waters up to 200 miles off the U.S. coastline traveling on voyages between U.S. ports, including offshore installations on the OCS will have to:

1. Complete Basic Safety Training and demonstrate continued competence within five years as per 46 CFR 10.205(l).
2. Complete an approved Basic and Advanced Fire Fighting course as per 46 CFR 10.205(g). (If Basic Training in fire fighting has already been completed, only Advanced Training will be required.)
3. Complete an approved First Aid and CPR course as per 46 CFR 10.205(g).
4. Meet the qualification requirements of 46 CFR Part 10 for minimum age, citizenship, physical exam, character check, drug screen, sea service requirements and Coast Guard examination.

RECORD: ASSESSMENT OF TRAINING BY DEMONSTRATION OF COMPETENCY — CHIEF ENGINEER — OSV (DOMESTIC WATERS)
ALL ASSESSMENTS DONE ON BOARD BY PERSONS HOLDING A LICENSE EQUAL OR SUPERIOR TO POSITION BEING ASSESSED.

Function: Marine engineering

Competence: 1.0 Use of appropriate tools for fabrication and repair operations typically performed on ships

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
1.1	Application of safe working practices in the workshop environment	Proper and safe use of tools and equipment		Demonstrate the following proper and safe use of tools and equipment utilized to perform typical shipboard repairs and fabrications:		
		1.1.1	Understands hoisting and pulling tools	Use hoisting and pulling tools commonly used on vessels.	Correct hoisting and pulling tools are chosen and used in accordance with instructions, manuals and good workmanship.	Name: Date:
		1.1.2	Use machine tools and equipment for repairs and fabrication	Use machine tools and equipment for fabrication and repairs.	Use of equipment and machine tools is appropriate and safe and fabrication is to designated tolerances.	Name: Date:
		1.1.3	Select and use hand tools for dismantling, inspecting, repairing and reassembling equipment	Use hand tools for dismantling, inspecting, repairing and reassembling equipment.	Hand tools are properly selected and used for adjustments and calibrations and for dismantling and re-assembling of machinery and equipment.	Name: Date:
		1.1.4	Select and use general and special measuring equipment	Select measuring instruments used for adjustments, calibrations, repair and maintenance of machinery and equipment.	The selected measuring instruments used for adjustments, calibrations, repair and maintenance of machinery and equipment are relevant for the tasks, correct measures are taken and checked for compliance with stated tolerances.	Name: Date:

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Competence: 2.0 Use hand tools and measuring equipment for dismantling, maintenance, repair and reassembly of shipboard plant and equipment

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
2.1	Interpretation of machinery drawings and handbooks	Interpret information in technical manuals and machinery drawings		Conduct the following tasks:		
		2.1.1	Use technical manuals and machinery drawings	Participate in the dis-assembly, maintenance, repair and re-assembly of shipboard equipment using machinery drawings and manuals.	Correctly performs all tasks in accordance with supervisor's instructions.	Name: Date:
		2.1.2	Locate and use relevant manuals and interpret drawings, diagrams, sketches and instructions.	Use the operating manuals, technical drawings, schematics, etc., aboard the vessel.	The instructions, drawings and diagrams relevant for the job are quickly identified and properly used.	Name: Date:

Competence: 3.0 Use hand tools, electrical and electronic measuring and test equipment for fault finding, maintenance and repair operations

	Knowledge, understanding, and proficiency	Performance Objective	Performance Measure	Performance Standard	Assessed by:
3.1	Safety requirements for working on shipboard electrical systems	Knowledge of lock-out, tag-out procedures and policies	Conduct a lock out, tag out of electrical equipment, and verify that the system is de-energized using electrical measuring instruments.	Successfully and correctly under the supervision of a qualified person complete a equipment lock-out, and tag-out procedure in accordance with vessel and company policies.	Name: Date:

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Competence: 3.0 Use hand tools, electrical and electronic measuring and test equipment for fault finding, maintenance and repair operations (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
3.2	Safety requirements for working on shipboard electrical systems (continued)	Use electrical measuring equipment		Using electrical measuring instruments to perform the following:		
		3.2.1	Safely measure circuit values (i.e., voltage, resistance, current)	Safely measure circuit values (i.e., voltage, resistance, current).	Under the supervision of a qualified person, correctly measure a circuit's voltage, resistance, and current.	Name: Date:
		3.2.2	Use test meters, such as digital multi-meters, for troubleshooting defects in basic electrical supply circuits aboard the vessel	Use test meters, such as digital multi-meters, for troubleshooting defects in basic electrical supply circuits aboard the vessel.	Correctly and safely uses test meters, such as digital multi-meters, for troubleshooting defects in basic electrical supply circuits aboard the vessel.	Name: Date:
		3.2.3	At the branch distribution panel, understands how to use the ohmmeter to check for a short-circuit in the branch	At the branch distribution panel, use the ohmmeter to check for a short-circuit in the branch.	At the branch distribution panel, uses the ohmmeter to check for a short-circuit in the branch.	Name: Date:
		3.2.4	Understands and knows step by step, how to locate a short circuit	Locate a short circuit.	Successfully use step by step procedures to locate a short circuit.	Name: Date:

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Competence: 4.0 Maintain a safe engineering watch

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
4.1	Duties associated with taking over and accepting a watch	4.1.1	Knows and understands the reasons an officer in charge of the engineering watch shall not hand over the watch to the relieving officer	Explain the reasons an officer in charge of the engineering watch shall not hand over the watch to the relieving officer.	Explanation is consistent with requirements in section A-VIII/2, paragraph 56, of the STCW Code.	Name: Date:
		4.1.2	Thorough understanding of the terminology contained within the STCW Code with regards to the engine department	Use the terminology contained within the STCW Code with regards to the engine department.	Defines relevant terms found in Section A-VIII/2 of the STCW Code.	Name: Date:
		4.1.3	Thorough knowledge of the STCW Code Section A-VIII/2 requirements to be observed in keeping an engineering watch	Stand an engineering watch.	Watch is maintained in accordance with Section A-VIII/2 of the STCW Code.	Name: Date:
		4.1.4	Understands the proper procedures for taking over the engineering watch while underway	Take over the engineering watch while underway.	Watch is taken over in accordance with Section A-VIII/2, part 3-2, of the STCW Code.	Name: Date:

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Competence: 4.0 Maintain a safe engineering watch (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
4.2	Routine duties undertaken during a watch	4.2.1	Knows the nature of all work being performed on machinery and systems, the personnel involved, and potential hazards	Explain the nature of all work being performed on machinery and systems, the personnel involved, and potential hazards.	Explanation matches the work being performed.	Name: Date:
		4.2.2	Knows established watchkeeping arrangements and the functions of rating forming part of the engineering watch	Describe established watchkeeping arrangements and the functions of rating forming part of the engineering watch.	Description conforms to Section A-VIII/2, and Table A-III/4 of the STCW Code.	Name: Date:
		4.2.3	Understands the use of the intercommunication systems	Use the appropriate intercommunication system.	Established procedures are followed and communications are established.	Name: Date:
		4.2.4	Knows where all escape routes are leading from the machinery spaces	Identify all escape routes from the machinery spaces.	All escape routes are properly identified.	Name: Date:
		4.2.5	Knows and understands the various engine-room alarm systems and distinguish between the various alarms, especially the fire-extinguishing media alarm	Describe the various engine-room alarm systems and distinguish between the various alarms, especially the fire-extinguishing media alarm.	Description is accurate with respect to the equipment on the vessel.	Name: Date:

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Competence: 4.0 Maintain a safe engineering watch (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
4.2	Routine duties undertaken during a watch (continued)	4.2.3	Understands the use of the intercommunication systems	Use the appropriate intercommunication system.	Established procedures are followed and communications are established.	Name: Date:
		4.2.4	Knows where all escape routes are leading from the machinery spaces	Identify all escape routes from the machinery spaces.	All escape routes are properly identified.	Name: Date:
		4.2.5	Knows and understands the various engine-room alarm systems and distinguish between the various alarms, especially the fire-extinguishing media alarm	Describe the various engine-room alarm systems and distinguish between the various alarms, especially the fire-extinguishing media alarm.	Description is accurate with respect to the equipment on the vessel.	Name: Date:

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Competence: 4.0 Maintain a safe engineering watch (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
4.2	Routine duties undertaken during a watch (continued)	4.2.6	Knows how to operate the propulsion equipment in response to needs for changes in direction or speed	Operate the propulsion equipment in response to need for changes in direction or speed.	Equipment responds to specified orders.	Name: Date:
		4.2.7	Understands that preventive maintenance, damage control, or repair operations are to be performed during the engineering watch	Determine and describe all preventative maintenance, damage control, or repair operations performed during the engineering watch.	Determinations are complete; descriptions are satisfactory; and work is properly recorded.	Name: Date:
		4.2.8	Knows and understands how to Inspect the running machinery in the charge of the officer of the engineering watch; describe the condition of all such machinery	Inspect the machinery in the charge of the officer in charge of the engineering watch; describe the condition of all such machinery.	Condition is accurately described.	Name: Date:
		4.2.9	Make rounds of the machinery and steering gear spaces	Make rounds of the machinery and steering gear spaces for the purpose of observing and reporting equipment malfunctions or breakdowns and performing under direction routine adjustments, required upkeep, and other necessary tasks.	Performance and descriptions are satisfactory and accurate.	Name: Date:

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Competence: 4.0 Maintain a safe engineering watch (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
4.3	Maintenance of machinery space logbook and significance of the readings taken	Use machinery space logbook to record changes in machinery status		Ensures that the following events related to the main and auxiliary machinery which have occurred during the engineering watch are suitably recorded:		
		4.3.1	Use machinery space logbook to record malfunctions.	Record malfunctions in machinery space log.	Promptly and accurately logs malfunctions and special service items.	Name: Date:
		4.3.2	Maintain the engine room log.	Make entries in the engine room log.	Maintains all engine room log books and records data accurately and neatly.	Name: Date:
		4.3.3	Maintain records of main and auxiliary machinery operation while on watch.	Make entries regarding operation of main and auxiliary machinery operation.	Takes readings correctly and makes accurate and neat log book entries of the main engines and other systems.	Name: Date:

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Competence: 4.0 Maintain a safe engineering watch (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
4.4	Duties associated with handing over a watch	Handing over the watch		Hand over the watch.	Ensure that all events related to the main and auxiliary machinery which have occurred during the engineering watch are suitably passed on to their relief, and shall not hand over the watch to their relief if there is reason to believe that the latter is obviously not capable of carrying out the watchkeeping duties effectively.	Name: Date:
4.5	Safety and emergency procedures; change-over of remote / automatic to local control of all systems	Knowledge of emergency and safety procedures		Describe and/or perform the following safety and emergency procedures:		
		4.5.1	Determine, where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually.	Monitor and control the console equipment on the vessel.	Determinations are correct.	Name: Date:
		4.5.2	Understands the impact of various adverse conditions on engine room operations by bad weather, ice, contaminated water, or shallow water.	Describe potential adverse conditions that could result from bad weather, ice, contaminated water, or shallow water.	Descriptions are complete and accurate.	Name: Date:

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Competence: 4.0 Maintain a safe engineering watch (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
4.5	Safety and emergency procedures; change-over of remote / automatic to local control of all systems (continued)	4.5.3	Determine any special modes of operation dictated by equipment failure or adverse ship conditions and describe how various equipment failures or adverse ship conditions could potentially dictate special modes of operation.	Describe contingency plans for adverse conditions or equipment failures.	Contingency plans are thorough and responsive.	Name: Date:
		4.5.4	Know the availability of fire-fighting appliances and the procedures to be undertaken in case of fire.	Determine the availability of fire-fighting appliances and describe procedures to be undertaken in case of fire.	Status of firefighting equipment is accurate and description of procedures is complete.	Name: Date:
		4.5.5	Respond to situations of damage resulting from equipment breakdown, fire, flooding, rupture, collision, grounding, or other causes in order to contain the effects.	Take actions during emergency that would be necessary in case of damage resulting from equipment breakdown, fire, flooding, rupture, collision, grounding, or other causes in order to contain the effects.	Actions are thorough and effective in containing the damage or casualty.	Name: Date:

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Competence: 5.0 Operate main and auxiliary machinery and associated control systems

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
5.1	Preparation of main machinery and preparation of auxiliary machinery for operation	Preparation of testing of the main machinery and preparation of auxiliary machinery for getting underway		Participate in the following preparations for testing of the main machinery and preparation of auxiliary machinery for getting underway:		
		5.1.1	Test steering gear.	Test the steering gear system for getting underway.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.2	Check steering gear.	Check steering gear systems while underway.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.3	Knowledge to change-over steering.	Change over to the standby steering system.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.4	Check compressed air system.	Check the compressed air system.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.5	Operate compressed air system.	Operate the compressed air system.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.6	Check refrigeration system.	Check refrigeration system operation.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.7	Check air conditioning system.	Check air conditioning system operation.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:

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Competence: 5.0 Operate main and auxiliary machinery and associated control systems (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
5.1	Preparation of main machinery and preparation of auxiliary machinery for operation (continued)	5.1.8	Check potable water system operation.	Check potable water system operation.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.9	Check sanitary system operation	Check sanitary system operation.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.10	Check sewage system operation	Check sewage system operation.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:
		5.1.11	Start main diesel engine	Prepare and start the main propulsion diesel engine, including all necessary checks and actions to ensure that the auxiliary and control systems are functioning satisfactorily.	Correctly performs all tasks in accordance with manufacturer's instructions and company policy.	Name: Date:

Competence: 6.0 Operate pumping system and associated controls

	Knowledge, understanding, and proficiency	Performance Objective	Performance Measure	Performance Standard	Assessed by:
6.1	Pumping Systems - Routine pumping operations	Transfer fuel	Participate in the transfer of fuel.	Correctly performs all tasks in accordance with manufacturer's instructions, company policy, and pollution prevention regulations.	Name: Date:
6.2	Pumping Systems - Operation of bilge, ballast, and cargo	Ability to measure, monitor and control liquid levels in the machinery space bilges	Measure, monitor and control liquid levels in the machinery space bilges.	Measurements of liquid levels are accurate to +/- 5 % of actual; disposal and control of bilge liquids is within established	Name:

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	pumping systems			procedures and guidelines.	Date:

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Competence: 6.0 Operate pumping system and associated controls (continued)

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
6.2	Pumping Systems - Operation of bilge, ballast, and cargo pumping systems (continued)	6.2.1	Pump bilges	Pump out bilges.	Correctly performs all tasks in accordance with manufacturer's instructions, company policy, and pollution prevention regulations.	Name: Date:
		6.2.2	Knowledge of ballasting	Fill and empty ballast tanks.	Correctly performs all tasks in accordance with manufacturer's instructions, company safety policies, and pollution prevention regulations.	Name: Date:
		6.2.3	Knowledge of transferring bulk liquid drill water cargo	Participate in bulk liquid drill water cargo transfer operations.	Correctly performs all tasks in accordance with manufacturer's instructions, company safety policies, and pollution prevention regulations.	Name: Date:
		6.2.4	Knowledge of transferring bulk liquid mud cargo	Participate in bulk liquid mud cargo transfer operations.	Correctly performs all tasks in accordance with manufacturer's instructions, company safety policies, and pollution prevention regulations.	Name: Date:
		6.2.5	Knowledge of transferring bulk dry and cargo	Participate in bulk dry cargo transfer operations.	Correctly performs all tasks in accordance with manufacturer's instructions, company safety policies, and pollution prevention regulations.	Name: Date:

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Function: Electrical, electronic and control engineering

Competence: 7.0 Operate alternators, generators and control systems

	Knowledge, understanding, and proficiency	Performance Objective		Performance Measure	Performance Standard	Assessed by:
7.1	*Generating plant* Preparing, starting, coupling and changing over alternators or generators	Preparing, starting, coupling and changing over alternators or generators		Demonstrate the following proper starting and paralleling generators, load transferring, and changing over:		
		7.1.1	Start and parallel generators	Start and parallel generators, transfer electrical load, and change over following applicable safety procedures.	Correctly performs all tasks in accordance with manufacturer's instructions, company safety policies.	Name: Date:
		7.1.2	Start emergency generator	Start the emergency generator.	Correctly performs all tasks in accordance with manufacturer's instructions, company safety policies.	Name: Date:

Competence: 8.0 Maintain marine engineering systems, including control systems

8.1	*Marine systems* Appropriate basic mechanical knowledge and skills	Knowledge of machinery space and plant arrangements of components, equipment, associated piping and control systems	Trace out and draw diagrams machinery space arrangement of plant components, equipment, associated piping and control systems.	Correctly draws diagrams as compared to actual physical component/equipment locations, manufacturer's manuals, and Ship's Information Book.	Name: Date:
8.2	*Safety and Emergency Procedures* Safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant or equipment	Knowledge of how to perform lock-out, tag-out procedures	Conduct lock-out, tag-out of an electrical component, and a component of a fluid system.	Correctly performs all tasks in accordance with vessel and company safety policies.	Name: Date:

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Competence: 8.0 Maintain marine engineering systems, including control systems (continued)

	Knowledge, understanding, and proficiency	Performance Objective	Performance Measure	Performance Standard	Assessed by:
8.3	Undertake maintenance and repair to plant and equipment	Knowledge of performed maintenance on auxiliary machinery	Routinely inspect and repair as required auxiliary machinery.	Correctly performs all tasks in accordance with manufacturer's instructions, company policies, and Ship' Information Books.	Name: Date:

Function: Controlling the operation of the ship and care for persons on board

Competence: 9.0 Monitor the loading, stowage, securing and unloading of cargoes and care during the voyage

	Knowledge, understanding, and proficiency	Performance Objective	Performance Measure	Performance Standard	Assessed by:
9.1	Cargo handling, stowage, and securing	Stow and secure cargoes, including cargo-handling gear and lashing equipment	Stow and secure cargoes.	Cargo is stowed and secured in a manner that is stable, safe, efficient, and in accordance with company policy, and the Ship's Information Book.	Name: Date: